

Using honey production for enhancing household income among rural communities of Nsukka Local Government Area of Enugu State, Nigeria

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Accepted 24th July, 2013

Abstract. The study assessed the use of honey production for increasing household income among rural communities of Nsukka Local Government Area of Enugu State, Nigeria. Interview schedule and focus group discussion were used to collect data from a sample of sixty (60) heads of households. Data were analyzed using frequency and percentage. Majority (71.7%) of the respondents sold honey in local community markets. Constraints to honey production were lack of funds for establishing hives (71.7%), poor storage facilities (60.0%), adverse weather on quantity (60.0%) and quality (43.3%) of honey produced, poor processing facilities (46.7%), unavailability of modern harvesting techniques (50.0%), among others. Adequate provision of funds and extracting machines will help increase productivity of honey thus boosting household income. Efforts of the government are highly required in organizing youths in agriculture by providing them with the necessary capitals needed to promote beekeeping in order to ensure maximum production of honey for enhanced household income.

Key words: Honey, production, household, income, rural, communities.

INTRODUCTION

Apiculture, the keeping and maintenance of bees for commercial reasons, often begins as a hobby that can later be expanded into a small business. A beekeeping enterprise can provide marketable honey and serve as a source of pollinators for nearby cultivated crops (Webster, 2009). The main sources of pollen and nectar for bees are oil palm, oil bean, cashew, mango, African bread fruit trees, among others. Beekeeping for honey production is a profitable agricultural enterprise in all parts of the world including Nigeria. It is an important foreign exchange earner for countries that export honey and beeswax. Honey is a sweet, viscous liquid, dark golden in colour produced by bees from pollens and nectars and stored in honey combs in the hives. However, four types of honey bees are commonly found

in Nsukka Local Government Areas based on indigenous knowledge, namely; *Okotobo*, *Okampu*, *Anu Udene* and *Okpoghoru* (Ezugwu, 2001). Traditional hives for bee keeping can be made of hollow logs of wood, earthen pots or other locally made materials. Typical examples of bee hives are shown in Figures 1 and 2.

Unfortunately, beekeeping as a commercial venture is still largely unexplored in Nigeria, and the country meets domestic demand for honey mostly by importation from producer countries (Ja'afarfuro, 2007; Ayansola, 2009). There is a growing consumption of honey and other bee products because of its high values in maintaining good health and in treating wounds, infection of eyes and various diseases. With the current growth in domestic consumption of honey in Nigeria coupled with mechanized



Figure 1. Bee hives in a forest for honey production.



Figure 2. Clusters of bees on a bee comb in a hive.

agriculture in every part of Nigeria (resulting in large crop acreages), the future of apiculture enterprise is very bright as the demand for honey and pollinators is bound to increase. Cost of beekeeping is low compared with other kinds of farming coupled with its high return on investment.

Apiculture is an industry that can help develop rural areas of Nigeria through increased farm income (Bradbear, 1991; Oduntan, 1999). It could also provide employment opportunities for majority of jobless individuals living in rural areas. There are however, major obstacles to apiculture development in Tropical countries mainly due to lack of capital as well as shortage of appropriate technical assistance for beekeepers. In spite of the favorable climatic and socio-economic environment, low-cost and sufficient availability of flowering plants and manpower, most developing countries have the following problems in common; lack of trained manpower and appropriate technical knowledge, limitation in resources, especially in the case of endemic diseases affecting bee colonies, lack of information on suitable internal/external markets, inappropriate processing technology for product diversification, lack of financial resources for sustainable apiculture development, among others (Dukku, 2001).

Despite the fact that honey production raises the income of rural dwellers, appropriate harvesting techniques and marketing of it is yet to be fully utilized by households in the study area. This raises the following questions: What are the harvesting and marketing methods used for honey production among households? What are sources of agricultural information for producers and marketers of honey? And what are the constraints to effective production and sale of honey?

The specific objectives were to:

1. Ascertain methods of harvesting honey among the respondents;
2. Identify methods used in marketing honey;
3. Identify sources of agricultural information for producers and marketers of honey; and
4. Ascertain constraints to effective production and sale of honey.

MATERIALS AND METHODS

The study was conducted in Opi town in Nsukka Local Government Area of Enugu State, Nigeria. Opi town is made up of three communities, namely; Idi-Opi, Ibeku-Opi and Ogbosara-Opi. Each of the communities comprise of four villages. Opi town was selected for the study because majority of the households are widely known for honey production. Two villages were selected from each of the three communities using simple random sampling technique. A list of households involved in production of honey was obtained from the village head.

In each of the villages selected, ten (10) heads of households were selected, giving a total of sixty (60) respondents for the study.

Interview schedule/questionnaire were used for data collection. Interview schedule was used for illiterate farmers, while questionnaire was used for the literate farmers. The interview schedule/questionnaire was divided into four sections based on the specific objectives of the study. Data were analyzed using frequency and percentage.

RESULTS AND DISCUSSION

Socio-economic characteristics of the respondents

Data in Table 1 reveals that majority (91.7%) of the respondents were males, while 8.3% were females. This implies that production of honey in the area was dominated by men. This may be attributed to the strenuous activities involved in honey production which has made it to be male centered. The findings agree with Folayan and Bifarin (2013) who observed in a study carried out in Edo North Local Government Area of Edo State, Nigeria, that 98% of the respondents involved in honey production were males. They suggested that this may be due to the nature of the enterprise since the farmers are exposed to the risk of being stung by the bees for which the women folk may not be strong enough to withstand.

Table 1 also shows that a greater proportion (38.3%) of the respondents were between the ages of 20 and 29 years, 23.3% were within the age range of 30 to 39, while 16.7% were 50 to 59 years, among others (Table 1). This indicated that honey production was mostly carried out by young people in the area. This is in line with Folayan and Bifarin (2013) who stated that honey producers were still in active age while the enterprise is an emerging one for which the youths were attracted in order to generate income.

Results in Table 1 also indicated that 41.7% of the respondents were married, 41.7% were single, 11.6% were widowed while 5.0% were divorced (Table 1). This implies that both married and single were involved in production of honey. This could be as a result of high returns obtained from this production.

Majority (71.7%) had formal education, while 28.3% had no formal education (Table 1). Education facilitates farmers' ability to use improved technology that will boost production. This is in agreement with Ajani and Agwu (2012) who stated that education will facilitate farmers' ability to use ICTs and appreciate their importance in farming activities.

About 50% of the respondents had a fairly large family size of 6 to 10 members, 33.3% of them had between 1 and 5 members, while 16.7% had above 10 members, respectively. Thus, the large family size of 6 to 10 members

Table 1. Distribution of the respondents according to socio-economic characteristics (n = 60).

| Variable | Frequency | Percentage |
|---------------------------|-----------|------------|
| Sex | | |
| Male | 55 | 91.7 |
| Female | 5 | 8.3 |
| Age | | |
| 20-29 | 23 | 38.3 |
| 30-39 | 14 | 23.3 |
| 40-49 | 7 | 11.6 |
| 50-59 | 10 | 16.7 |
| 60 and above | 6 | 10.1 |
| Marital status | | |
| Married | 25 | 41.7 |
| Single | 25 | 41.7 |
| Widowed | 7 | 11.6 |
| Divorced | 3 | 5.0 |
| Educational qualification | | |
| No formal education | 17 | 28.3 |
| Primary school | 15 | 25.0 |
| Secondary school | 16 | 26.7 |
| Tertiary education | 12 | 20.0 |
| Household size | | |
| 1-5 | 20 | 33.3 |
| 6-10 | 30 | 50.0 |
| Above 10 | 10 | 16.7 |
| Major occupation | | |
| Farming | 16 | 26.7 |
| Petty trading | 26 | 43.2 |
| Civil service | 6 | 10.1 |
| Student | 9 | 15.0 |
| Artisan | 3 | 5.0 |

constitute the family labor which most of the respondents rely upon carrying out activities such as harvesting and processing of honey. Daudu et al. (2005) showed that family members constitute a strong labor force used in agricultural activities.

A greater proportion (43.2%) of the respondents were engaged in petty trading as a major occupation while 26.7% were involved in farming, among others. This shows that the respondents were mostly farmers and petty traders. This is to empower themselves and enable them sustain their families economically.

Methods of harvesting honey

Results in Table 2 indicate that about 77% of the

respondents engaged in traditional beekeeping, 16.7% were engaged in wild collection, while 6.6% were engaged in migratory beekeeping (Table 2). This agrees with Folayan and Bifarin (2013) who observed that majority of the respondents were using traditional methods of honey production. This could be attributed to the fact that traditional beekeeping requires less labour unlike other methods.

Majority (95.0%) of the respondents were using smoldering materials for collecting honey, 90.0% were using bucket, 73.3% were using basins, while 68.3% were using clay pot and drum, among others. This implies that the respondents were using traditional practices in harvesting honey.

The respondents indicated that the peak period for

Table 2. Distribution of the respondents according to methods of harvesting honey (n = 60).

| Variable | Frequency | Percentage |
|-------------------------------------|-----------|------------|
| Migratory beekeeping | 4 | 6.6 |
| Traditional beekeeping | 46 | 76.7 |
| Wild collection | 10 | 16.7 |
| Material used for collecting honey* | | |
| Hollowed log of wood | 1 | 1.6 |
| Clay pot | 16 | 26.7 |
| Drum | 2 | 3.3 |
| Clay pot and drum | 41 | 68.3 |
| Bucket | 54 | 90.0 |
| Basin | 44 | 73.3 |
| Smoldering materials | 57 | 95.0 |
| Period of harvesting | | |
| Jan-March | 45 | 75.0 |
| April-July | 5 | 8.3 |
| Oct-Dec | 10 | 16.7 |
| Ending of dry season | 18 | 30.0 |

*Multiple responses

Table 3. Percentage distribution of the respondents according to methods of calming the bees, cooling of hives and testing for maturity (n = 60).

| Variable | Frequency | Percentage |
|-----------------------------|-----------|------------|
| Methods of calming the bees | | |
| Smoke | 56 | 93.4 |
| Water | 4 | 6.6 |
| Cooling of hives | | |
| Use of water | 8 | 13.3 |
| Use of thatched roof | 52 | 86.7 |
| Testing for maturity | | |
| Common sense | 36 | 60.0 |
| Tasting | 6 | 10.1 |
| End of dry season | 18 | 29.9 |

harvesting honey was January to March (75.0%); others (30.0, 16.7 and 8.3%) harvested ending of dry season, October to December and April to July, respectively. It shows that the respondents were harvesting before the peak of rainy season. It is not surprising because flowering of plants take place during the dry season and this accounts for abundant nectar accumulation by the bees.

Methods of calming bees, cooling of hives and testing for maturity

Data in Table 3 revealed that 93.4% of the respondents

were using smoke in calming the bees, while about 7% were using water. The use of smoke is dangerous because it causes reduction in the population of honey bees and can also result in bush burning. Adequate awareness campaign on the dangers of using smoke in calming the bees should be created by the extension agents in order to avoid bush burning and other disasters emanating from it. The respondents were using thatched roof in cooling the hives (86.7%), while 13.3% were using water. This is to prevent dehydration of the honey comb from the hive (Table 3).

Entries in Table 3 also indicate that 60% of the

Table 4. Distribution of respondents based on methods of marketing honey (n = 60).

| Variable* | Frequency | Percentage |
|----------------------------------|-----------|------------|
| Measure used for selling | | |
| <i>Gogbo</i> (equivalent to 5 L) | 35 | 58.3 |
| 20 L of gallon | 15 | 25.0 |
| Basin | 16 | 26.7 |
| Place of sale | | |
| Local community market | 43 | 71.7 |
| Door to door sales | 14 | 23.3 |
| Road side stands | 23 | 38.3 |

*Multiple responses

Table 5. Percentage distribution of respondents according to sources of agricultural information (n = 60).

| Sources of agricultural information* | Frequency | Percentage |
|--------------------------------------|-----------|------------|
| Radio | 6 | 10.1 |
| Fellow farmers | 51 | 85.0 |
| Extension agents | 8 | 13.3 |
| Agricultural magazines | 5 | 8.3 |

*Multiple responses

respondents test for maturity of honey using common sense, about 30% of the respondents does so at the end of dry season, while 10.1% taste for maturity.

Methods used for marketing honey

The various measures used in selling honey were indicated by the respondents in Table 4. About 58% of the respondents were using a local measure known as *gogbo*, 26.7% were using basin, while 25.0% were using 20 L container.

Majority (71.7%) of the respondents sell in local community markets, 38.3% have road side stands where they sell, while 23.3% practice door to door sales moving from one house to another in search of customers to buy their product. This implies that the respondents sold honey mostly in local community markets. This could be attributed to nearness of such markets to place of production. This will also help to reduce cost of transportation from place of production to place of sale.

Sources of agricultural information for the respondents

The respondents indicated that the major source of agricultural information were fellow farmers (85.0%). Others include extension agents (13.3%), radio (10.1%) and agricultural magazines (8.3%) (Table 5). This indicated that the respondents obtained most of their agricultural information among farmers. This is in line with

a study carried out by Anyanwu et al. (2002) which stated that inter-personal communication is a two way process which has a high reference value since the receiver could ask questions and get feedback almost immediately.

Constraints to effective production and marketing of honey

The major constraints to effective production and marketing of honey among the respondents were lack of fund for establishment (71.7%), high cost of transportation (65.0%), poor market network (60.0%), poor storage facilities (60.0%) and adverse weather condition on quantity (60.0%) (Table 6). Others include unavailability of modern harvesting techniques (50.0%), poor feeding of honey bees (48.3%), poor demand of the product (46.7%), poor processing facilities (46.7%), unavailability of dressing materials (45.0%), among others. Generally, most of the constraints indicated by the respondents were associated with inadequate funds. Folayan and Bifarin (2013) concluded that honey producers were highly constrained by high cost of establishment of hives and lack of fund.

CONCLUSION AND RECOMMENDATIONS

Honey production is a powerful way of tackling poverty at the grassroots level. It could be a useful avenue for

Table 6. Percentage distribution of the respondents according to constraints to effective production and sale of honey (n = 60).

| Constraints* | Frequency | Percentage |
|--|-----------|------------|
| Lack of fund for establishment | 43 | 71.7 |
| Poor storage facilities | 36 | 60.0 |
| Unavailability of modern harvesting techniques | 30 | 50.0 |
| Poor demand of the product | 28 | 46.7 |
| Poor feeding of honey bees | 29 | 48.3 |
| High cost of transportation | 39 | 65.0 |
| Adverse weather on quality | 26 | 43.3 |
| Adverse weather on quantity | 36 | 60.0 |
| Unavailability of dressing materials | 27 | 45.0 |
| Poor processing facilities | 28 | 46.7 |
| High incidence of pests and diseases | 17 | 28.3 |
| High risk of bush burning | 25 | 41.7 |
| Poor market network | 39 | 65.0 |

improving rural economy. Beekeeping should be considered as a great source of employment creation for the rural people to reduce poverty. It also serves as an avenue for economic empowerment, ensuring household food security and poverty reduction.

Production and marketing of honey were highly constrained by fund related factors such as lack of fund for establishment, high cost of transportation, poor market network, poor storage facilities, unavailability of modern harvesting techniques, poor feeding of honey bees, poor processing facilities and unavailability of dressing materials.

Government should organize youths in agriculture by providing them with the necessary capitals and skills needed to start bee keeping in order to ensure maximum productivity for enhanced household income.

Agricultural extension agencies are also required to embark on improved extension programmes on bee keeping in order to provide adequate information on improved technologies of beekeeping for the producers. Organization of co-operatives for easy access to loans and training on the use of modern hives techniques remains paramount.

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